

## CLAIMS

What is claimed is:

1. A method of inhibiting invasion of a host by a fungus, comprising contacting the fungus with a compound which inhibits expression of a gene expressed in the filamentation MAPK pathway and which enhances said pathway, in sufficient quantity that inhibition of the expression of said gene occurs, thereby inhibiting invasion of the host by the fungus.
2. A method according to Claim 1 wherein the gene is TOT10/YELO33W.
3. A method according to Claim 1 wherein the host is a plant and the compound is applied to a plant surface in such manner that it contacts the fungus.
4. A method according to Claim 1 wherein the fungus is a yeast.
5. A method of inhibiting invasion of a host by a fungus, comprising contacting the fungus with a compound which inhibits activity of a gene product encoded by a gene expressed in the filamentation MAPK pathway, in sufficient quantity that inhibition of the activity of said gene product occurs, thereby inhibiting invasion of the host by the fungus.
6. A method according to Claim 5 wherein the gene is TOT10/YELO33W.
7. A method according to Claim 5 wherein the host is a plant and the compound is applied to a plant surface in such manner that it contacts the fungus.
8. A method according to Claim 5 wherein the fungus is a yeast.

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9. A method of identifying an agent which inhibits the filamentation MAPK pathway in a fungus, comprising the steps of:
- 5 a) providing an expression vector comprising a nucleic acid molecule of a gene which is expressed in the filamentation MAPK pathway;
- b) transforming a suitable host cell with said expression vector under conditions suitable for expression of said gene;
- c) contacting said host cell with an agent to be tested; and
- d) comparing the expression of said gene in the presence of the agent with the expression of said gene in the absence of said agent,
- 10 wherein if the expression of said gene is lower in the presence of the agent than in the absence of the agent, then the agent is an inhibitor of the filamentation MAPK pathway in a fungus.
10. A method according to Claim 9/a wherein the gene is TOT10/YELO33W.
11. A method according to Claim 9, wherein the fungus is yeast.
- 15 12. A method according to Claim 9, wherein the gene is identified by expression profiling as having repressed expression in the presence of galacturonic acid.
13. A method according to Claim 9/a wherein the gene is identified by expression profiling as being expressed in haploid fungal cells and not expressed in diploid fungal cells.
- 20 14. A method of inhibiting fungal filamentation, comprising contacting the fungus with a compound which inhibits expression of a gene expressed in the filamentation MAPK pathway, in sufficient quantity that inhibition of the expression of said gene occurs, thereby inhibiting filamentation by the fungus.
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15. A method of identifying an agent which modulates PGUI gene expression, comprising the steps of:

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- a) providing an expression vector comprising a nucleic acid molecule encoding PGUI;
  - b) transforming a suitable host cell with said expression vector under conditions suitable for expression of PGUI;
  - c) contacting said host cell with an agent to be tested; and
  - d) comparing the expression of PGUI in the presence of the agent with the expression of PGUI in the absence of said agent,

10 wherein a difference in the expression of PGUI in the presence of the agent as compared with in the absence of the agent indicates that the agent modulates PGUI expression.

16. A method of reducing the adverse effects of fungal invasion of a host, comprising administering to the host an effective amount of an agent which  
15 inhibits PGUI expression in the fungus.

17. A method of inhibiting invasion of a host by a fungus, comprising contacting the fungus with a compound which enhances expression of a gene expressed in the filamentation MAPK pathway and which inhibits said pathway, in sufficient  
20 quantity that enhancement of the expression of said gene occurs, thereby inhibiting invasion of the host by the fungus.

18. A method according to Claim 1 wherein the fungus is a yeast.

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